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Katz

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(54) **METHOD OF IMPROVING RADIO CONNECTION QUALITY**

(75) Inventor: **Marcos Katz**, Oulu (FI)

(73) Assignee: **Nokia Corporation**, Espoo (FI)

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Primary Examiner—Cong Van Tran
(74) *Attorney, Agent, or Firm*—Squire, Sanders & Dempsey L.L.P.

(57) **ABSTRACT**

The invention relates to a method of improving radio connection (**170**) quality in a cellular radio network and a cellular radio network. The cellular radio network comprises a vase station system (**126**) and subscriber terminals (**150**). Between the base station system (**126**) and the subscriber terminal (**150**) there is a bidirectional radio connection (**170**) using a directional antenna beam (**304, 306**). In the method, a direction of arrival (**302**A) of the antenna beam (**304**A) directed on the basis of a radio signal (**304**A) received uplink, transmitted by the subscriber terminal (**150**) is formed in the base station system (**126**). The base station system (**126**) transmits a radio signal (**306**) downlink to the subscriber terminal (**150**) in the direction of transmission (**308**) formed on the basis of the direction of arrival (**302**A). In forming the direction of transmission (**308**) a preknown number (L) of previously formed directions of arrival (**402, 302**C, **302**B, **302**A) are utilized. In accordance with the invention, when forming the direction of transmission (**308**) each previously formed direction of arrival (**402, 302**C, **302**B, **302**A) is weighted in inverse proportion to the temporal distance of the direction of arrival (**402, 302**C, **302**B, **302**A) from a known reference time instant (**302**A). The reference time instant is, for instance, the forming instant (**302**A) of the latest direction of arrival.

30 Claims, 4 Drawing Sheets